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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/827,214

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Brian T. Holland

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EXAMINER

METZMAIER, DANIEL S

ART UNIT

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1796

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/827,214	<b>Applicant(s)</b> HOLLAND ET AL.	
	<b>Examiner</b> Daniel S. Metzmaier	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,8,10-29 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) 12-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,10,11 and 32-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-2, 8, 10-29 and 32-35 are pending.

#### ***Election/Restrictions***

1. Applicant's election of Group I, claims 1-11 and 30-31, now claims 1-2, 8, 10-11 and 32-33, in the reply filed on 22 January 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 12-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 22 January 2007.

#### ***Claim interpretation***

3. The claims are drafted in product-by-process format. Attention is directed to MPEP 2113 for claim analysis of product-by-process claim limitations. Copolymerized as now claimed has basis at page 9, lines 15 et seq, discloses the term copolymerized and is characterized as a heel solution of silicic acid with a metallic cation. Said materials are further characterized as having a "metal-silicate lattice microstructure". Applicants (page 2, lines 29-30) characterize the colloidal particles as amorphous and spherical in shape, which may be further processed to produce crystalline structure.

Two structures appear to be set forth as the "metal-silicate lattice microstructure" and the macrostructure as amorphous or crystalline, wherein the microstructure results from the presence of the metal cation formation with the silicic acid to form the colloidal

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particles. Applicants are requested to clarify this interpretation to the extent that the claims preclude materials that are amorphous and have a “metal-silicate lattice microstructure”.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether applicants intend the lattice structure to define the microscopic arrangement between silica and metal cations in both amorphous and crystalline materials or that said materials are exclusive to crystalline materials. The alternative group employing “and” and “and/or” render the claim indefinite.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2 and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al, US 5,597,512. Watanabe et al (examples and claims, particularly

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claims 4 and 5) disclose making silica sols having 972 ppm and 1156 ppm of CaO.

Watanabe et al (examples and claims) disclose the use of sodium hydroxide as a stabilizer as well as quaternary ammonium compounds (claims 4 and 5) as stabilizers.

Watanabe et al (claims) disclose the use of MgO or CaO in the form of metal salts with silicic acid. Watanabe et al (column 1, lines 5-15) disclose the use of the sols as surface coating agents. The claimed lattice structure would be inherent to the Watanabe et al materials as the microstructure of the particles based on the divalent and tetravalent arrangement of the alkaline earth metal cations with the siloxy structure formed from the silicic acids.

8. Claims 1-2, 8, 10 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Finlayson et al, US 4,287,086. Finlayson et al disclose organic systems employing organophilic clay suspended in said organic systems. The organophilic clay is made organophilic by the addition of a quaternary amine. Said clay is inherently a layered material that is in colloidal form. Bentonite and hectorite are both montmorillonite clays. Hectorite is known to be a sodium/magnesium/lithium silicate. Bentonite is known as an aluminosilicates and would have had residual amounts of sodium/magnesium/calcium. The materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

9. Claims 1-2, 8, 10-11 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by S. Mintova et al, "Effect of the silica source on the formation of nanosized silicalite-1: an in situ dynamic light scattering study", Microporous and Mesoporous Materials, 55 (2002), pages 171-179. S. Mintova et al (2. Experimental) discloses the

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synthesis of nanosized silicalite-1 comprising tetrapropylammonium hydroxide (TPAOH) : 0.13 moles  $\text{Na}_2\text{O}$  : 25  $\text{SiO}_2$  in water and ethanol. The hydrothermal treatment results in the crystallized layered structure and the alkali metal, i.e., sodium is present in less than 2 wt% of silica. The materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

10. Claims 1-2, 8, 10-11 and 32-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Cundy et al, "Some observations on the preparations and properties of colloidal silicalites. Part I: Synthesis of colloidal silicalite-1 and titanasilicalite-1 (TS-1)", Microporous and Mesoporous Materials, 66 (2003), pages 143-156. Cundy et al (page 146, 2.2 Preparation of TS-1sols) discloses the preparation of titanasilicalite-1 sols with TPAOH having 6 mole % of titanium metal and discloses as little as 1 mole % titanium metal. The 1 mole % equates to less than 2 wt % of metal based on silica. The materials would have been expected to be inherently spherical since the said materials have not been otherwise stated.

### ***Response to Arguments***

11. Applicant's arguments filed 19 February 2008 have been fully considered but they are not persuasive.

12. Applicants (pages 9 and 10) assert the specification describes materials are amorphous and crystalline. Thus it is concluded that the claims are not indefinite. Applicants' amendment to the claim 1 has obviated the rejection. Applicants' new claim 34 presents the same issue, which is indefinite for the same reason. It is unclear what

applicants intend since they include multiple and possibly inconsistent conjunctive phrases.

13. Applicants (pages 10 and 11) assert the alkaline earth metals are in solution as ions and are not covalently bound to the materials in the Watanabe et al reference.

This has not been deemed persuasive since claims 2 and 11 have been amended to set forth as little as 1 parts per million of the metal. The remaining claims are open to any concentration. This reads on what applicants characterize as negligible or what is accepted as trace amounts.

14. Applicants (page 11) assert Finlayson et al is directed to modified natural materials rather than the synthetic materials as claimed. This has not been deemed persuasive since the modification of the natural materials disclosed in the Finlayson et al reference renders them synthetic. Claims are given their broadest interpretation in light of the specification during examination.

15. Applicants (pages 11 and 12) assert Mintova materials are known in the art to be devoid of covalently bound metal. Most of applicants' claims may contain any amount of covalently bound metal and claims 2 and 11 may contain as little as 1 ppm of covalently bound metal. Applicants' conclusion has not been supported by evidence and amounts to unsubstantiated conclusion. Alkali metal is often characterized as  $M_2O$ , which would be covalently bound as an oxide.

16. Applicants (pages 12 and 13) assert essentially the same arguments regarding Cundy as presented for Mintova. These have not been deemed persuasive since most of applicants' claims may contain any amount of covalently bound metal and claims 2

and 11 may contain as little as 1 ppm of covalently bound metal. Applicants' conclusion has not been supported by evidence and amounts to unsubstantiated conclusion.

Furthermore, unlike the alkali metal, the titanium metal is multivalent and expected to have some covalently bound bonding.

17. Applicants' claims are drafted in product-by process format. A *prima facie* case having been presented, the burden shifts to applicants to show the claimed materials are patentably distinct and non-obvious.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Daniel S. Metzmaier/  
Primary Examiner, Art Unit 1796**

DSM